



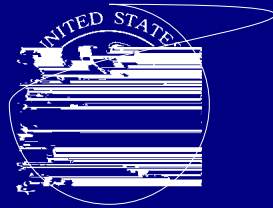
United States General Accounting Office

Report to the Honorable  
John J. Duncan, Jr.,  
House of Representatives

July 1995

# HIGHWAY SIGNS

## Conversion to Metric Units Could Be Costly







United States  
General Accounting Office  
Washington, D.C. 20548

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Resources, Community, and  
Economic Development Division

B-260979

July 7, 1995

The Honorable John J. Duncan, Jr.  
House of Representatives

Dear Mr. Duncan:

The Metric Conversion Act, as amended, requires every federal agency to use the metric system in its procurement, grants, and other business-related activities to the extent economically feasible. Responding to the act, the Federal Highway Administration (FHWA) developed a metric conversion plan and timetable, which included the conversion to metric units of highway signs, such as, speed limit, distance, and clearance, on all of the nation's roads by September 30, 1996. In response to your request, we have (1) determined the status of federal and states' efforts to convert highway signs to metric units and (2) examined the possible costs involved in implementing the conversion.

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because, among other things, this estimate is very soft, however,  
FHWA has tasked its contractor—Battelle—with developing  
a more comprehensive, data-driven estimate for various conversion  
options by January 1996 so that FHWA

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FHWAs Metric Conversion  
Plan

FHWA

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In a memo to the Department of Commerce, the Secretary of Transportation noted that FAA's programs relating to air traffic control, aircraft certification, and air safety regulations represent exceptions to DOT's plans for conversion to the metric system because by international agreements these systems use nonmetric measures.

contracts advertised before bids after September 30, 1996. Basically, state exceptions will be granted only to states that have demonstrated a conscientious effort to convert and are committed to the full use of the metric system. State exceptions will be granted on a project-by-project basis.

Program elements/activities	Target date	Status
Develop IHWA's metric conversion plan		
Initiate revision of pertinent laws and regulations that serve as barriers to metric conversion		

was moving forward on other aspects of converting its highway program to metric, on June 27, 1994, it issued a federal Register

officials said that they would establish revised implementation requirements sometime after 1996 and that sign conversion is still an agency goal. The officials said that postponement was necessary because of recent legislative prohibitions on the use of federal-aid highway funds for this activity and because of negative comments received on the 1995-1996 Transportation

's appropriations bills that prohibited the use of federal-aid funds for placing metric signs on our nation's roads. Concerns about the cost of conversion

FHWA's August 1993 notice also contributed to the agency's postponement of the metric signage requirement. Overall, about 85 percent of the respondents (2,288 out of 2,731) were opposed to converting English measurement signs to metric units. Most respondents cited the cost involved in converting, and a majority said that the funds could be better used to repair roads and bridges. Several local officials commented that the conversion was another federal mandate without thought of how it would be locally financed. Furthermore, several states that responded requested special funding and an education/public information program before implementing metric signage.

Most states have not taken any action to convert their signs to metric units. However, Alabama and Arizona are planning for full conversion of highway signs to metric units. In addition to changing highway signs, such as speed limit and direction signs, to metric units, the Alabama DOT's strategy includes changing milepost markers to kilometer posts. The state DOT uses federal-aid funds to install kilometer posts as a reference system to be used for the collection of highway data.

system would not

FHWA has postponed the requirement for states to convert their highway signs to metric units, it continues to be an agency goal. As such, activities that support sign conversion continue. For example, is currently converting the Manual on Uniform Traffic Control Devices into dual units—English and metric. This manual provides federal guidance to the state

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- Option 2: Convert all highway signs over a 6-month to 1-year period. Priority roads would be converted quickly while other roads would be phased in over a longer period of time.
- Option 3: Carry out a two-phase transition with dual metric and English measurement signs posted by October 1996 and move to metric-only signs at some time in the future.

Although most respondents opposed conversion, about 15 percent voted for one of the three options for sign conversion. About 70 percent of the 443 respondents supported option 2, about 27 percent supported option 3, and the remaining 3 percent supported option 1. If FHWA requires conversion and federal funds are available, AASHTO's position is that at least a 2-year lead time is needed to plan the highway sign conversion. After the 2-year lead time, AASHTO proposes that FHWA

FHWA

FHWA officials said that one approach they are considering is to put metric units in yellow to differentiate them from the English unit signs drivers are used to. For any option, the American Trucking Association official told us that without a nationwide educational process before the conversion occurs, commercial truck drivers and the general driving public may not be familiar with metric units. This lack of education could result in safety concerns related to speed and also clearance heights on bridges and tunnels.

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’s option\$1, Alabama is replacing highway signs with metric signs through routine maintenance and for other reasons such as construction. However, Alabama plans, unlike option 1, to put an English measure overlay on\$the signs.

’s option 1, this approach would also allow for the signs to be changed to metric concurrently over the same short period as overlays are removed or metric unit overlays are added for those English-unit signs that had not been replaced during maintenance.

One open question concerning Alabama’s approach is whether the state will remove the overlays and convert to metric if decides not to require conversion.\$From a safety standpoint, it may not be prudent for one state to convert and the surrounding states to keep their signs in English units. officials said that they had not decided on a course of action if conversion were not mandatory and some states converted and otherbedid not.

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## The Cost of"Highway Sign Conversion Could Be Substantial

FHWA has not estimated the nationwide costs of highway sign conversions. However, on\$the basis of Canada’s experience in metric sign conversion as well as the work done to date by Alabama, “ballpark” estimates of"about \$334 million and \$420 million can be calculated. In\$1977, the Canadian Ministries changed about 241,000 signs (using overlays) on 300,000 miles of highway, which is about the number of highway miles in California and Texas. The conversion took 2 months and cost about \$13.4 million\$in 1995

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Initially, Alabama estimated that it would cost \$2.7 million to convert its state highway signs, using the quick-conversion option, to metric units by October 1995. After the initial estimate, Alabama increased its estimate to \$3.8 million (at about \$70 per sign), to include an additional \$1.1 million to install kilometer markers for data collection purposes.<sup>10</sup>

Eight of the nine states that we contacted provided very preliminary cost estimates, ranging from a low of \$1 million to a high of \$20 million, for changing their highway signs on state roads. Alabama's estimate of 6 million signs, as well as the one for signs—large ones, small ones, or T-topost markers—could be important in determining costs.

FHWA

officials told us that most states have not developed cost estimates. Many states do not have information on the number of signs that they would need to change on local roads or the costs involved. Several state officials noted in the 1993 Federal Register notice that since there are many more miles on local roads than state roads, the sign conversion costs could be quite substantial. According to an

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State and local officials, AASHTO, and an American Trucking Association official all said that an important component to highway sign conversion is public education. Without a more comprehensive national conversion effort that would seek to educate all parts of our society on the metric system, FHWA and state s might have to establish and fund an education program before signs are converted.

According to AASHTO's 1993 "Guide to Metric Conversion," careful planning and a public information campaign are largely credited for

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## Conclusions

FHWA opposed conversion because of the costs. While  
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FHWA said that it intends to play a role in metric education and that the states could use the material that it develops or build on those materials with an educational plan of their own. Since it is uncertain how education will be handled or how much it will cost nationwide, we continue to believe that developing such an estimate will help to ensure that the cost estimates developed by Battelle will include all potential costs of conversion.

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To evaluate the status and costs of converting the nation's highway signs to metric units, we interviewed responsible officials from



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# Major Contributors to This Report

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